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10/526,097	09/07/2005	Thomas Mueller	14603-012US1	2670

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EXAMINER	
NATALINI, JEFF WILLIAM	
ART UNIT	**PAPER NUMBER**
2831	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/526,097	MUELLER, THOMAS	
	Examiner	**Art Unit**	
	JEFF NATALINI	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/30/08*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-8,10 and 12-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-8,10 and 12-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

FINAL ACTION

Claim Rejections - 35 USC § 103

1. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kish et al. (7043109) in view of Diab et al. (US Publication 2001/0020123).

In regard to claim 1, Kish et al. disclosed method (Fig. 17,23) for use with an integrated circuit (PIC) that is light-sensitive, the method comprising: applying different wavelengths (Fig. 33,34) of light 132 from external light source (laser)(column 21 line 62,63) to the integrated circuit, the integrated circuit producing output signals in response to the different wavelengths of light, measuring the output (column 21 line 63) signals to obtain measured values; comparing the measured values to setpoint values 140 (desired output) that correspond to the different wavelengths of light, obtaining correction values (calibrate data) for the different wavelengths of light, the correction values being based on comparison 140 of the measured values to the setpoint value 140 (desired output) and storing (144,232) (Fig. 17,23) the correction values on the integrated circuit (column 34 lines 6-10); wherein the integrated circuit is on a semiconductor substrate 32 (Fig. 6) and testing is performed using testing card 200 (probe card) (Fig. 22) for integrated circuits (PIC 10) (figure 22), wherein testing needles (206A/B) (figure 22) form contacts between the testing card (200-figure 22) and integrated circuit (PIC- 10, figure 22).

Kish lacks specifically wherein the different wavelengths of light are applied via light-emitting diodes that are mounted to the testing card.

It is common in the art that lasers and light emitting diodes are measured for wavelengths of light, and Diab et al. discloses wherein different wavelengths of light are applied via light emitting diodes, wherein the wavelengths are monitored (paragraphs 71 and 72) and wherein the light emitting diodes (figure 7, 254 and 256) are mounted to a testing card (figure 7, connector and it's components).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Kish to include having light emitting diodes mounted to a testing circuit, wherein the light emitting diodes would apply the different wavelengths of light as taught by Diab et al. in order to have a system to obtain a precise wavelength for an accurate measurement system (abstract).

In regard to claim 6, Kish et al. disclose wherein the integrated circuit comprises one or more photodiodes PD (Fig. 37).

In regard to claim 20, Kish et al. as modified discloses wherein the testing card is configured so that the light-emitting diodes illuminate the integrated circuit that is below the testing card (as disclosed above in claim the light emitting diodes are configured on the testing card and therefore they would be able to/configured to illuminate the surrounding area, including an integrated circuit located close to the testing card).

In regard to claim 21, Kish et al. discloses wherein the testing card comprises an opening at an illumination point of the integrated circuit (figure 22, opening seen right below element 206).

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kish et al. (7043109) and Diab et al. (US Publication 2001/0020123) as applied to claim 1 above, and further in view of De Vries et al. (5736848).

In regard to claim 7, Kish et al. as modified discloses all of the claimed limitations as set forth above except wherein correction values are stored using zener diodes.

De Vries et al. discloses measurement and calibration system wherein memory 11 is provided with zener diode for storing a digital calibration value.

At the time the invention was made it would have been obvious for one of ordinary skill in the art to modify Kish et al. as modified by providing memory with zener diode disclosed by De Vries et al. for storing a digital calibration value.

3. Claims 8, 10, and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kish et al. (7043109) in view of Kai et al. (US Publication 2002/0070359).

In regard to claims 8, 10, 12, and 13, Kish et al. discloses a method/apparatus (Fig. 17,23) for use with an integrated circuit (PIC) that is light-sensitive, providing different wavelengths (Fig. 33,34) of light 132 from external light source (laser)(column 21 line 62,63) to the integrated circuit, the integrated circuit producing output signals in response to the different wavelengths of light, measuring the output (column 21 line 63) signals to obtain measured values; comparing the measured values to setpoint values 140 (desired output) that correspond to the different wavelengths of light, obtaining correction values (calibrate data) for the different wavelengths of light, the correction

values being based on comparison 140 of the measured values to the setpoint value 140 (desired output) and storing (144,232) (Fig. 17,23) the correction values on the integrated circuit (column 34 lines 6-10), wherein the semiconductor chip comprise the integrated circuit (figure 22, IC- 10 is located inside the wafer-11).

Kish et al. lacks specifically a temperature sensor for measuring temperature of light source and correction data derived from the temperature, so that it is on the integrated circuit.

Kai et al. discloses a temperature sensor that determines a temperature of the light sources, and uses the output of the temperature sensor to control the oscillation wavelengths by compensation for temperature conditions (abstract), temperature sensor (figure 3 element 24) is in the vicinity of the LD array chip-20 (chips are known to be located on integrated circuits/wafers- there would be a type of board/motherboard/integrated circuit supporting and providing proper connections- power and ground- to the chip and thermistor, possibly being shown in the figure by the unlabeled box surrounding elements 20 and 24).

At the time the invention was made it would have been obvious for one of ordinary skill in the art to modify Kish et al. by adding a temperature sensor (which would be obvious to be on the integrated circuit as the PIC has optic components- abstract, and the temperature sensor would have the added functionality to make sure all the other chips on the integrated circuit and wafer don't overheat) for measuring the temperature of light source for correction of the wavelengths as taught by Kai et al., (during modification it would be known to be place on the integrated circuit of Kish et al.,

(similar to how Kai is described as an integrated circuit above) as the PIC -located on a wafer- has optic components-abstract- also the temperature sensor would provide the added functionality to make sure all the other chips on the integrated circuit and wafer don't overheat) in order to be able to easily control the wavelength in the system (page 1 paragraph 10).

In regard to claim 14, Kish et al. discloses wherein the integrated circuit is on a semiconductor substrate 32 (Fig. 6).

In regard to claim 15, Kish et al. discloses wherein the integrated circuit comprises one or more photodiodes able to receive different wavelengths of light PD (Fig. 37).

In regard to claims 23 and 24, Kish et al. discloses storage media for permanently storing information [claim 23], wherein this is read-only memory [claim 24] (col 34 lines 6-10).

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kish et al. (7043109) and Kai et al. (US Publication 2002/0070359) as applied to claim 8 above, and further in view of De Vries et al. (5736848).

In regard to claim 16, Kish et al. as modified discloses all of the claimed limitations as set forth above except wherein correction values are stored using zener diodes.

De Vries et al. discloses measurement and calibration system wherein memory 11 is provided with zener diode for storing a digital calibration value.

At the time the invention was made it would have been obvious for one of ordinary skill in the art to modify Kish et al. as modified by providing memory with zener diode disclosed by De Vries et al. for storing a digital calibration value.

5. Claims 17 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kish et al. (7043109) and Diab et al. (US Publication 2001/0020123) as applied to claim 1 above, and further in view of Schmeizer (US Publication 2002/0048022).

Kish et al. as modified discloses (claim 5) wherein information is stored on the integrated circuit (column 34 lines 6-10).

Kish et al. as modified lacks (claim 17) wherein the measured values define a sensitivity curve, wherein a smallest interval between two of the different wavelengths on the sensitivity curve is smaller than an interval between a relative maximum and a relative minimum on the sensitivity curve and (claim 5) wherein the sensitivity curve is obtained by interpolating between measured values.

Schmeizer et al. discloses a sensitivity curve (figure 2) based on measured values of wavelengths from LEDs or lasers (page 3 paragraph 21), wherein a smallest interval between two of the different wavelengths on the sensitivity curve is smaller than an interval between a relative maximum and a relative minimum on the sensitivity curve (figure 2, many samples are taken so intervals between wavelengths are small), wherein the sensitivity curve is obtained by interpolating between measured values (see abstract and also the line connecting the dots/squares/triangles is a broad sense of interpolating).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Kish et al. as modified to include a sensitivity curve using interpolation with many measurements, so that a smallest interval between two of the different wavelengths on the sensitivity curve is smaller than an interval between a relative maximum and a relative minimum on the sensitivity curve, as taught by Schmeizer et al. in order to measure the quality of dispersion or distribution of the measured values in a matrix (page 1 paragraph 4).

6. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kish et al. (7043109) and Kai et al. (US Publication 2002/0070359) as applied to claim 8 and 10 above, and further in view of Schmeizer (US Publication 2002/0048022)

In regard to claims 18 and 19, Kish et al. as modified discloses wherein the integrated circuit (PIC) has a sensitivity that is wavelength dependent (i.e. the integrated circuit is sensitive to different wavelengths of laser).

Kish et al. as modified lacks wherein the measured values define a sensitivity curve, wherein a smallest interval between two of the different wavelengths on the sensitivity curve is smaller than an interval between a relative maximum and a relative minimum on the sensitivity curve, in part, by the two measured wavelengths.

Schmeizer et al. discloses a sensitivity curve (figure 2) based on measured values of wavelengths from LEDs or lasers (page 3 paragraph 21), wherein a smallest interval between two of the different wavelengths on the sensitivity curve is smaller than

an interval between a relative maximum and a relative minimum on the sensitivity curve (figure 2, many samples are taken so intervals between wavelengths are small).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Kish et al. as modified to include a sensitivity curve using with many measurements, so that a smallest interval between two of the different wavelengths on the sensitivity curve is smaller than an interval between a relative maximum and a relative minimum on the sensitivity curve, as taught by Schmeizer et al. in order to measure the quality of dispersion or distribution of the measured values in a matrix (page 1 paragraph 4).

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kish et al. (7043109) and Diab et al. (US Publication 2001/0020123) as applied to claim 1 above, and further in view of Smith et al. (5047711).

Kish et al. as modified lacks specially wherein the testing needles are in contact with areas of the integrated circuit to absorb current generated in the integrated circuit.

Smith et al. discloses in figure 2 wherein a probe assembly (element 24) contacts a wafer/integrated circuit (10) and measures/absorbs the current from the integrated circuit (col 3 line 59 - col 4 line 6).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Kish et al. as modified to include measuring/absorbing the current from the integrated circuit as taught by Smith et al. in order to determine the failed integrated circuit (col 4 lines 1-6).

Response to Arguments

8. Applicant's arguments filed 12/30/08 have been fully considered but they are not persuasive.

In regard to claim 1, Applicant questions whether there is motivation to combine the teaching of Diab et al. with Kish et al. Diab et al. teaches:

> Diab et al. discloses wherein different wavelengths of light are applied via light emitting diodes, wherein the wavelengths are monitored (paragraphs 71 and 72) and wherein the light emitting diodes (figure 7, 254 and 256) are mounted to a testing card (figure 7, connector and it's components)

One of ordinary skill in the art at the time of invention would understand that in an optical measuring system, adding the ability to obtain a precise wavelength for an accurate measurement system (as described in the office action 9/30/08), would add a desired feature to Kish et al.'s system.

Applicant argues that figure 22, of Kish is not disclosed in any of the provisional applications giving priority to Kish. But in paragraph on page 93 of 60/328207, a "plurality of contact probes" is described, which are the probes disclosed in figure 22 of Kish, and it further states the contact probes “provide wafer level reliability screening". Also see 60/370345, figures 5A and 5B show contacts of the integrated circuit, which further describes the integrated circuit that is going to be contacted by these probes. Therefore the Examiner believes figure 22 is properly described in the provisional application and one of ordinary skill in the art would understand that Kish et al. had discovered this system at the time of filling the provisional application.

In regard to claims 8 and 10, Kish discloses an integrated circuit (PIC) that is provided different wavelengths of light (see first line of the rejection above) and therefore is broadly light sensitive.

Applicant further argues that Kish et al. as modified by Kai further lacks that the temperature sensor would not be disclosed on the integrated circuit, the examiner has tried to further describe how in the combination of Kai, when the temperature sensor in the vicinity of the array chip is taught to be located on the integrated circuit as would be in the vicinity of the source of light and it would add functionality such as being able to detect excess heat on an element of the wafer or integrated circuit. As one of ordinary skill in the art would understand, Kish et al. in figure 3, would include a board/motherboard/wafer (box around these elements) to support and provide connections for powering the chip-element 20 and thermistor element 24. Thus when modifying Kish by the teaching of Kai, it is clear one of ordinary skill in the art would place a temperature sensor on the integrated circuit of Kish as it contains optical components and other components that could also overheat. In the argument the applicant didn't provide any reasoning why when modifying Kish et al. by Kai, the temperature sensor would not be placed on the integrated circuit -which is located on a wafer- of Kish et al. or why it would likely be placed in a different location.

Also, the applicant argues that correction data is not used to for correcting the wavelength dependent output signal, but this is seen in at least paragraph 27, as it states that a temperature change is used to correct the wavelength, thus the correction

data is broadly the temperature change which must be analyzed based on the measured temperature and then used to make wavelength changes.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFF NATALINI whose telephone number is (571)272-2266. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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